

IN THE ABSTRACT

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The present invention is directed to novel structures for use in connection with OLED devices that simultaneously act as a multiplayer mirror and as a barrier to harmful species in the exterior environment. According to one embodiment of the invention, an OLED structure is provided that ~~comprises~~ includes (a) a substrate; (b) an OLED over the substrate that ~~comprises~~ includes (i) a first electrode, (ii) an emission region above the first electrode and (iii) a second electrode above the emission region, wherein the OLED emits light having a range of wavelengths upon being turned on; and (c) a multiplayer mirror over the substrate, the multiplayer mirror ~~comprising~~ including an alternating series of (i) planarizing layers having a first refractive index and (ii) high-density layers having a second refractive index that differs from the first refractive index. The thicknesses of the planarizing layers and of the high-density layers in this embodiment are selected such that the multiplayer mirror is tuned to transmit light at a peak wavelength within the range of wavelengths emitted by the OLED. Moreover, the planarizing layers and the high-density layers cooperate to restrict transmission of water and oxygen.